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ABSTRACT

This study examined the relationship between training in Cognitive Coaching and a number of qualitative and quantitative components of teacher cognition and behavior hypothesized to be positively impacted by such training. Cognitive Coaching involves a planning conference between coach and teacher, classroom observation, and a reflecting conference. The research was conducted in the context of a quasi-experimental post-test only design with 143 participants in 2 groups, one of which received training one year earlier than the other group. The control group received no training. Results were measured by the Teacher Efficacy Scale and The Vincenz Empowerment Scale (subscales are potency, independence, relatedness, motivation, values, and joy of life). Participants in the experimental group received training in 1991 or 1992. Those trained in 1991 tended to score higher on the empowerment scales than both the group trained in 1992 and the control group, and women tended to score higher than men. On the Efficacy Scale, 11 of 12 comparisons with the control group indicated higher efficacy scores for Cognitive Coaching trainees. Teachers trained in Cognitive Coaching were significantly more satisfied with teaching as a career than those not trained. Those who took Cognitive Coaching training expressed more positive feelings about all aspects of their experience as teachers than those who did not. (Contains 73 references.) (JB)

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The Effects of Cognitive Coaching on Teacher Efficacy and Empowerment

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ABSTRACT

The purpose of this study was to determine the effects of Cognitive Coaching training and practice on teacher efficacy and empowerment. Efficacy was measured with the *Teacher Efficacy Scale* (Cronbach's Alpha = .77) (Gibson & Dembo, 1984), consisting of the subscales of Personal Teaching Efficacy (I can make a difference) and Teaching Efficacy, or outcome expectancy (teachers can make a difference). The *Vincenz Empowerment Scale* (Cronbach's Alpha = .94) (Vincenz, 1990) was used to measure teacher empowerment. It includes the subscales of 1) Potency, 2) Independence, 3) Relatedness, 4) Motivation, 5) Values, and 6) Joy of Life. The Values subscale was not used in this study. Participants in the experimental group received training in Cognitive Coaching in either 1991 or 1992. Those trained in 1991 tended to score higher on the empowerment subscales than both the group trained in 1992 and the control group, and women tended to score higher than men. Those trained in 1991 and women scored significantly higher than those trained in 1992 and men or the control group on the Motivation and Joy of Life subscales. On the *Teacher Efficacy Scale*, all but one comparison out of 12 with the control group showed that those who were trained in Cognitive Coaching had higher efficacy scores. As was the case with empowerment, those teachers who were farther removed from training showed greater differences from the control group than those who were trained more recently. On the total *Teacher Efficacy Scale* and on the Teaching Efficacy subscale (outcome expectancy), those who took Cognitive Coaching training scored significantly higher than those who did not, but differences in Personal Teaching Efficacy were not statistically significant. In addition, those who did more coaching scored higher on both Teaching Efficacy and Total Efficacy, but not on Personal Efficacy. Significance was obtained for number of coaching cycles with total empowerment scores, Independence, and Motivation. Potency and Joy of Life were significant at .10. In addition, teachers trained in Cognitive Coaching were significantly more satisfied with teaching as a career than those not trained. Those who took Cognitive Coaching training expressed more positive feelings about all aspects of their experience as teachers than those who did not take Cognitive Coaching. Both experimental and control groups expressed positive attitudes toward Cognitive Coaching. Seventy-three references are included.

This paper examines the relationship between training in Cognitive Coaching (Costa and Garmston, 1994) and a number of qualitative and quantitative components of teacher cognition and behavior hypothesized to be positively impacted by such training. The research was conducted in the context of a quasi-experimental posttest only design comprised of two groups of teachers, one of which received training in Cognitive Coaching.

According to Costa and Garmston, Cognitive Coaching is "the supervisor's application of a set of strategies designed to enhance the teacher's perceptions, decisions, and intellectual functions. These inner thought processes are prerequisites to improving overt instructional behaviors which will, in turn, produce greater student learning" (Costa & Garmston, 1989, p. R-6). Costa and Garmston argue that instructionally effective teacher cognition does not automatically develop during the instructional process. Instead, for many teachers, this capacity is a product of careful training. The training process of Cognitive Coaching is a specifically crafted set of skills that builds on the beliefs that all teachers are capable of change, that teaching is dependent on high quality decision making skills, and that teachers trained in Cognitive Coaching can significantly enhance their colleagues' cognitive processes, decisions, and teaching behaviors.

The three main goals of Cognitive Coaching include: "1) establishing and maintaining *trust*, 2) facilitating mutual *learning*, and 3) enhancing teacher *holonomy*" (Costa and Garmston, 1994, p. 3). Holonomous teachers are "individuals acting *autonomously* while simultaneously acting *interdependently* with the group" (Costa and

Garmston (1994, p. 3). Costa and Garmston identified five states of mind that are the energy sources fueling holonomous behaviors (Costa and Garmston, 1994, p. 130). They include efficacy, flexibility, craftsmanship, consciousness, and interdependence. Coaches continually keep in mind a teacher's level of development in these five aspects of holonomy, and formulate questions to help move the teacher ahead in growth on each dimension.

The three phases of the coaching process are the Planning Conference, the classroom observation, and the Reflecting Conference (Costa and Garmston, 1994). As a result of this Planning Conference, observation, and Reflecting Conference sequence, "the target of change is teacher thought. This is important and rewarding because it is the invisible skills of teaching, the thinking processes that underlie instructional decisions, that produce superior instruction" (Garmston, 1991, p. 12).

> Many see this goal as worth the effort because successful teachers are thoughtful teachers who produce higher student achievement on many measures of success. Teachers who experience Cognitive Coaching enthusiastically report improvements in the way they think about instruction during planning, teaching and afterwards. This thinking is linked to changes in the way they teach, their satisfaction in teaching and student learning. Most administrators who provide this kind of coaching also report increases in their own learning, renewed joy in professional relationships and freedom from the artificial role of "I have all the answers" (Garmston, 1991, p. 12).

Despite the intuitive appeal of Cognitive Coaching, much of the empirical evidence that supports the effectiveness of this approach is based on impressionistic accounts and limited case studies. In this research, we attempted to assess two of the components that appear central to the types of change targeted by the Cognitive Coaching model, teacher efficacy and teacher empowerment.

Teacher Efficacy

Costa and Garmston cite efficacy as "the most catalytic of the five states of mind" (1994, p. 133). Efficacy is critical because the teacher is continually faced with multiple, complex and often competing decisions. Cognitive Coaching seeks to aid the teacher in the process of decision making. A rich body of literature exists that defines the teacher as a decision maker and discusses teacher decisions (Hunter, 1979; Shavelson, 1973, 1982; Shavelson & Borko, 1979). Berliner (1984) suggested that teachers make approximately 10 decisions that are non-trivial per hour, and within classes of 30 students have approximately 1,500 interactions with students each day. Jackson (1968) indicated that teachers make about 1,300 decisions each day. The efficacious teacher believes that his or her decisions make a difference and that he/she has the ability to make decisions that lead to the resolution of difficult situations. There is a considerable amount of evidence suggesting that when teachers believe they can make a difference, they in fact do. We review some of this literature below.

Advantages of Teacher Efficacy

Researchers have identified a number of advantages of developing teachers with high degrees of efficacy. Low efficacy teachers spent almost 50% of their time in small group instruction, while high efficacy teachers spent only 28% of their time in small groups (Gibson & Dembo, 1984). Low efficacy teachers were also more likely to provide a student with the answer, ask another student, or permit other students to call out the answer than high efficacy teachers. In contrast, high efficacy teachers

tended to lead students to the answer through questioning, were less critical, and were more persistent in failure situations (Gibson & Dembo, 1984).

Other advantages of high efficacy teachers have also been reported. High personal teaching efficacy correlated with reading achievement and with achievement in language and mathematics (Tracz & Gibson, 1986). Teachers with high efficacy exhibited less stress and higher internal locus of control than low efficacy teachers (Greenwood, Olejnik, & Parkay, 1990), and teachers with high efficacy used solution-oriented conflict message strategies (Grafton, 1987). High teacher efficacy has been linked with student gains in reading achievement (Armor, Conroy-Oseguera, Cox, King, McDonnell, Pascal, Pauly, & Zellman, 1976), overall school effectiveness (Brookover & Lezotte, 1979), and the use of fewer control tactics (Ashton, Webb & Doda, 1983). Glenn (1993) found that high efficacy teachers exhibited less anger for student behavior and academic failures, and were more willing to assume responsibility for those failures. Teacher efficacy in the middle school correlated significantly with teacher enthusiasm and higher grades for students (Newman, 1993). Teachers with low levels of efficacy were more likely to refer students from low-SES families to special education than teachers with higher levels of efficacy (Podell & Soodak, 1993). Furthermore, teachers with higher levels of efficacy had higher levels of parent involvement in conferences, volunteering, and home tutoring, and they perceived greater parent support (Hoover-Dempsey, Bassler, & Brissie, 1987).

Teachers holding high personal efficacy beliefs were more likely to emphasize the role of the teacher and the instructional program when explaining why students

were successful. They also de-emphasized the effects of the home (Hall, Hines, Bacon, & Koulianos, 1992). In addition, higher levels of curricular change are predicted by the interaction of high levels of efficacy and more frequent interactions among teachers (Poole, 1987; Poole & Okeafor, 1989). Higher efficacy scores were also related to higher levels of use of cooperative learning (Dutton, 1990).

Developing Teacher Efficacy

A number of models for developing and enhancing teacher efficacy have been proposed. Ashton et al. (1983) found that team teaching and multiage grouping supported the development of efficacy because teachers had material and psychological support and were able to work with students over several years. A healthy school climate also contributes to the development of teacher efficacy. Hoy & Woolfolk (1993) found correlations between personal teaching efficacy (I can make a difference) and principal influence (the principal exerting influence for teachers), academic emphasis, and educational level. Surprisingly, they also found that teacher morale, trust, cohesiveness, and warmth were not related to personal teaching efficacy. Teacher efficacy is affected by teacher beliefs about students' ability to learn, faculty influence over school policy, and faculty beliefs about student behavior (Fletcher, 1990). Howat (1990) and Grafton (1993) found correlations between higher efficacy and perceptions of participation in decision-making.

In a study by Coladarci & Breton (1991), teachers who reported that their supervision was beneficial also scored higher on teacher efficacy. Grafton (1993) found a positive correlation between beginning teachers' sense of efficacy and their

perception that they were encouraged to experiment and try new things in their positions. In a study by Showers (1980), more opportunities to participate and higher rates of actual participation in school decision making were associated with higher levels of self-efficacy.

Participation in Outward Bound courses resulted in significant increases in both personal and teaching efficacy by female participants (Sills, 1993). In a study by Moore and Esselman (1994), both personal and teaching efficacy were influenced by a positive school atmosphere that focused on instruction, the reduction of barriers to teaching effectively, and classroom-based decision-making. These researchers also found that schools with poor achievement, historically, tended to have teachers who reported lower efficacy and poorer perceptions of school atmosphere. Lofgren (1988) found that a partner school program, including research, resulted in increased teacher efficacy. In addition, training in the Hunter Instructional Model resulted in significant gains in personal efficacy, but not in teaching efficacy (Bolinger, 1988).

Garmston (1990) reported that as a result of the Cognitive Coaching process, "teachers experienced themselves in a different professional light . . . or identity . . . not as one who received feedback about what is effective and not effective in their teaching, but as one who autonomously and consciously developed those insights" (Garmston, 1990, p. 23).

Teacher Empowerment

The term, "Teacher Empowerment," began to appear in the literature in the late 1980's with the advent of site-based decision-making. Lightfoot (1986) defined

empowerment as a teacher's opportunities for autonomy, choice, responsibility, and participation in decision making in organizations. According to Bredeson (1989, p. 3), "the concept of a systematic process by which teachers would assume greater responsibility in their professional worklife is rooted in a large body of research in the areas of participatory decision making, professional development, job enrichment, as well as in the areas of professional autonomy and teacher efficacy." In defining teacher empowerment, Gore (1989) suggested that power was external, could be given and taken away, and implied the end state of empowerment. Teachers have been alienated from the workplace, and they will overcome that alienation as they are empowered, according to Vavrus (1989). Maeroff (1988, 1990) suggested that teacher empowerment consisted of the three elements of 1) improved status, 2) increased knowledge, and 3) access to decision-making. Glickman (1990) cited the importance of teacher empowerment by stating, "I believe that the movement to improve schools through empowerment may be the last chance in many of our lifetimes to make schools institutions that are worthy of public confidence and professional respect" (p. 69).

Empowerment of teachers is of critical importance. Matthes (1987) cites self-worth, efficacy, and empowerment as keys to effective schools. On the down side, Short & Rinehart (1992) found that higher levels of teacher empowerment correlated negatively with a measure of school climate. As teachers became empowered, they became more critical of school functioning and school processes. In this study, age and experience were also significant predictors of teacher empowerment. In another

study, approximately 40 teachers who had participated in Cognitive Coaching were interviewed (Garmston, 1990). Some teachers felt affirmed, empowered, and competent as a result of the experience. They persevered longer when trying new ideas, spent more time talking with colleagues about teaching, and had more enthusiasm for teaching. They generally viewed the experience as being transformational in quality. They also gained new perceptions about their responsibilities to the entire school, changed their relationships to the principal, and gained a new sense of joy for teaching.

Developing Teacher Empowerment

A number of strategies for developing and encouraging teacher empowerment have been discussed. Prawat (1991) suggested that epistemological and political conversations, both with self and with settings, will cause teachers to be empowered. As teachers ask questions of themselves and others, they will become empowered. In a study by Rinehart & Short (1992; 1993), Reading Recovery teacher leaders were found to be more highly empowered than Reading Recovery teachers or classroom teachers as a result of having increased opportunities to make decisions, having control over their schedules, having opportunities to grow professionally, and having a high level of teaching competency. Teachers involved in middle school interdisciplinary teams showed significantly higher levels of empowerment than teachers in departmentally organized programs at the middle level (Husband & Short, 1994).

Lichtenstein, McLaughlin, & Knudsen (1991, p. 2) "found little to suggest that

decentralization or enhanced teacher authority was necessarily or systematically associated with teacher empowerment, at least as conceived of by the teachers themselves." Instead, they found that knowledge of professional community, knowledge of education policy, and knowledge of subject area were most instrumental in causing teachers to be empowered. Nihlen (1992) taught teachers to be researchers in an attempt to empower them. Her qualitative study indicated that participation in research enabled teachers to develop collaborative relationships, learn to speak the language of critical analysis, and develop their understanding of the way things work. Hollingsworth (1992) also linked training teachers as researchers with the teacher empowerment movement. In another study, Butler, Etheridge, James & Ellis (1989) found that participation as mentors brought about empowerment of teachers, particularly in African-American mentors.

Instructional leadership behaviors that empowered teachers were identified by Martin (1990). Teachers scored higher on a measure of empowerment that included teacher efficacy, leadership efficacy, and decision-making efficacy. Principal behaviors that correlated with higher teacher empowerment included forming a collegial relationship with teachers, taking the time to work with them, communicating in an open manner, demonstrating trust and confidence in teachers, and sharing instructional knowledge. Then, teachers perceived the principals more as professional mentors. In addition, one aspect of teacher empowerment, expanding teacher knowledge, was significantly correlated with leader authenticity (Kirby & Colbert, 1994). Furthermore, teachers who had principals with visionary leadership showed higher

levels of empowerment, regardless of the performance level of the school (Bishop, 1994). Teacher empowerment was also found to be related to the degree of collaboration that principals exhibited (Carlson, 1994).

Irwin (1990) identified themes in the literature on teacher empowerment. Strategies identified as possibly contributing to teacher empowerment included teacher centers, consortiums, collaboration, linkages, professionalism, ownership, collegiality, risk-taking, listening, mentoring, context, and lack of isolation. Other aspects related to empowerment were grade level decisions, educational degree, committee participation, and union involvement (Delaney, 1994).

Literature on Cognitive Coaching

Several research studies have been done on Cognitive Coaching and related topics (Edwards, 1993; Foster, 1989; Garmston, 1990; Garmston, Linder, & Whitaker, 1993; Geltner, 1993; Hart, Sorensen, & Naylor, 1990; Langer & Colton, 1994; Liebmann, 1993; Lipton, 1993; McDonough, 1991; Paris & Winograd, 1990; Robbins & Gerritz, 1986; Sommers, 1991; Sparks & Bruder, 1987). Liebmann (1993) found that the states of mind of consciousness and interdependence, followed by flexibility, were critical attributes for all employees to have, as identified by human resource developers from product and service organizations. In Edwards' (1993) study, first-year teachers who had more coaching interactions grew more in reflection as indicated by scores on the Reflective Pedagogical Thinking instrument (Simmons, Sparks-Langer, Starko, Pasch, and Colton, 1989).

Foster (1989) investigated teachers' perceptions of the extent to which

Cognitive Coaching affected four areas of teacher thought (planning, teaching, analyzing and evaluating, and applying). Teachers with 6 or more years of experience perceived that Cognitive Coaching had an average impact on their thought processes in the four areas mentioned above. Teachers with 5 or less years of experience perceived that Cognitive Coaching had a low impact on their planning and teaching, and an average impact on analyzing and evaluating, and applying. Teachers who participated in seven or more conferences perceived that Cognitive Coaching had an average impact (when compared with other interventions) on their thought processes in all of the areas.

In another study, approximately 40 teachers who had participated in peer coaching were interviewed (Garmston, 1990). No attempt was made to control for number of times each teacher received coaching or the depth of skills of the coach. Some teachers felt affirmed, empowered, and competent as a result of the experience. They persevered longer when trying new ideas, spent more time talking with colleagues about teaching, and had more enthusiasm for teaching. They generally viewed the experience as being transformational in quality. They also gained new perceptions about their responsibilities to the entire school, changed their relationships to the principal, and gained a new sense of joy for teaching. Sparks and Bruder (1987) assessed the impact of peer coaching in two elementary schools in Ann Arbor, Michigan, each of which had supportive principals. One principal and almost half the teachers reported greater cohesiveness of staff as a result. They also reported increased observation, advice, and feedback from other teachers, increased

collegiality, more willingness to experiment with new teaching strategies, increased student learning, and increased comfort with the peer coaching process.

In another study, information was collected about principals' perceptions of existing and desired supervision practices that limit or increase their ability to be thoughtful and effective leaders in their schools (McDonough, 1991). Survey information was gathered from 64 principals who had been trained in Cognitive Coaching, and 46 principals who had not received the training. Principals identified "practices that are responsive in nature, create and manage trusting relationships, facilitate learning, are cognitively demanding, and develop autonomy" (p. vii) as contributing to their growth. Principals also indicated that collaboration with supervisors on work goals and frequent interaction with and observation by supervisors supported their growth.

Pre and posttest measures were reported for 12 teachers at Wayzata Senior High School who were involved in the Cognitive Coaching process during the 1989-90 school year (Sommers, 1991). Results indicated that teachers increased talk with colleagues about teaching, ceased to be concerned about the amount of work necessary to teach higher order thinking skills to students, improved on the direct instruction of thinking skills, liked the specific feedback and new ideas they received, reported increased collegiality, liked having other people in their classrooms, and recommended that other teachers become involved.

Other authors have found Cognitive Coaching to be helpful in promoting teacher reflection (Langer & Colton, 1994; Garmston, Linder, & Whitaker, 1993),

fostering independent learning in special needs students (Paris & Winograd, 1990) and helping principals acquire skills they need to be successful (Geltner, 1993; Hart, Sorensen, & Naylor, 1990; Lipton, 1993; Robbins & Gerrits, 1986).

Method

Sample

Forty-one men and 102 women participated in the study. Of these, 20 men and 31 women had taken Cognitive Coaching training, and 21 men and 71 women had not. (Six participants did not state their gender.) Of those who had received training, 27 received training in Summer, 1991, while 24 received training in Summer, 1992. Teachers, principals, and central office administrators participated in the study. There were 130 teachers (87%), 12 principals and vice-principals (8%), and 4 central administrators (3%).

The average age of participants in the study was 42.2. The average age of those who had taken the training was 46.4, and the average age of those who had not taken the training was 39.9 ($F = 13.98$, $p = .0003$).

One hundred twelve participants held Bachelor's degrees, and 25 held Master's degrees. Of those, 34 with Bachelor's degrees had taken Cognitive Coaching training, and 16 with Master's degrees had taken the training. Of those who did not take the training, 78 held Bachelor's degrees and 9 held Master's degrees. (Twelve participants did not respond to this question.)

Participants had an average of 13.8 years of teaching experience and 6.05 years in their present position. Those who had taken Cognitive Coaching Training had

an average of 17.16 years, and those who hadn't taken the training had an average of 11.89 years ($F = 9.57$, $p = .002$). Eleven teachers had taught one year, and 12 teachers had taught 4 years. The highest number of years was 33.

Instrumentation

Two instruments were selected for use in this study, the *Vincenz Empowerment Scale* (Vincenz, 1990) and the *Teacher Efficacy Scale* (Gibson & Dembo, 1984). These instruments were identified because they came close to matching the five states of mind described by Costa and Garmston (1994) and because the theoretical model described by Costa and Garmston links Cognitive Coaching with efficacy and empowerment. A second reason for selecting these instruments was the high reported reliabilities. For the VES, Cronbach's Alpha = .94 (Vincenz, 1990) and the TES, Cronbach's Alpha = .77 (Gibson & Dembo, 1984).

In addition to these instruments and demographic information, information was gathered regarding the following: satisfaction with teaching position and teaching as a career; attitude toward Cognitive Coaching; frequency of use of Cognitive Coaching skills; participation in triads, which are Cognitive Coaching support groups; leadership positions held prior to becoming involved in Cognitive Coaching and leadership positions since becoming involved in Cognitive Coaching; satisfaction with Professional Growth Planning; and teaching innovations used in the last two years.

The *Vincenz Empowerment Scale* (Vincenz, 1990) includes the concepts of mastery of one's personal life (self-empowerment) and effective involvement with one's environment. The scale consists of six dimensions: 1) Potency; 2)

Independence; 3) Relatedness; 4) Motivation; 5) Values; 6) Joy of Life. These are similar to the five states of mind that Cognitive Coaching focuses on impacting. Potency is similar to Efficacy, Independence is similar to Autonomy, which is part of Holonomy, and Relatedness is similar to Interdependence. Seventy-four items are in the original instrument. The Values scale was eliminated in this study, and total empowerment scores were computed by analyzing the questions contained in the Short Form of the scale (32 items) (Cronbach's alpha = .93).

Procedures

In June, 1993, all teachers (approximately 350) in the targeted school district were invited to participate in a study on the effects of Cognitive Coaching on teacher efficacy and empowerment. Those who chose to participate were asked to fill out the two instruments, the set of attitudinal items, and a demographic form.

Results

Effects of Cognitive Coaching on Teacher Empowerment and Efficacy

Table 1 presents the descriptive statistics for the *Vincenz Empowerment Scale* and its five subscales by Cognitive Coaching training group and gender. Three training groups are represented: those who took training in 1991, those who took training in 1992, and the control group. We present results separately for the two training groups because the groups were trained at one year intervals. The group trained earlier had more time to utilize the training and thus may have responded differently to the instruments. As can be seen in Table 1, this was not an unreasonable assumption. The group trained earlier tended to score higher than both the group trained later and

the control group, and women tended to score higher than men. In a number of instances, the control group scored slightly higher than the group trained in 1992.

Table 2 presents a 3x2 ANCOVA that examines the statistical significance of the training group by gender mean differences shown in Table 1. Gender was used as a blocking variable in all analyses because some scales produced significant gender differences and we wished to further explore those differences. Age was used as a covariate in this and all other analyses because the control and training groups were significantly different in age. Years of experience were also shown to differ significantly between the groups, but because years of experience correlated so highly with age, we chose not to include it as a second covariate ($r[135] = .86$, $p < .001$). The six ANCOVAs represented in Table 3 have been reorganized to permit easy examination of the effects for each factor and the covariate. All interaction effects, none of which were significant, were excluded. Because of the small cell sizes in the two training groups, we were concerned about Type II errors and thus included the .1 alpha level in this and all other significance tests. As can be seen in Table 2, there are significant differences in total scores for both training group and gender. The Motivation score and Joy of Life score also show significant main effects for both factors. Differences on the total score were at the .1 level, and thus are marginal; however, the differences for Motivation and Joy of Life are .05 or less. These differences occur because women, and those trained in 1991, score higher than men, and those trained in 1992 or the control group.

Table 3 presents the descriptive statistics for the *Teacher Efficacy Scale* by

training group and gender, and Table 4 presents the ANCOVA results. Three teacher efficacy scales are represented: 1) personal or self efficacy (I can make a difference), 2) teaching efficacy, or outcome expectancy (teachers can make a difference), and 3) the total *Teacher Efficacy Scale*, which is the sum of personal teacher efficacy and outcome expectancy. In 12 possible comparisons with the control group, all but one shows that those who were trained in Cognitive Coaching had higher efficacy scores. As was the case with empowerment, those teachers who were farther removed from training showed greater differences from the control group than those who were trained more recently.

On the total *Teacher Efficacy Scale* and on the Teaching Efficacy subscale (outcome expectancy), those who took Cognitive Coaching training had significantly more efficacy than those who did not, but differences on Personal Teaching Efficacy were not statistically significant. [For *Total Teacher Efficacy* ($\underline{F}_{[2, 121}$ = 9.93; $\underline{p}$ < .001); for *Teaching Efficacy*, or Outcome Expectancy ($\underline{F}_{[2, 122]}$ = 11.10, $\underline{p}$ < .001) and for *Personal Teaching Efficacy*, or Self-Efficacy ($\underline{F}_{[2, 122]}$ = 2.01, ns)].

Some literature suggests that the amount of coaching one does is related to its influence on various measures (Edwards, 1993; Foster, 1989; Joyce & Showers, 1983); therefore, we calculated the correlations between level of use of coaching and scores on the *Teacher Efficacy Scale*. Those who did more coaching scored higher on both Teaching Efficacy ($\underline{r}$ [48] = .42, $\underline{p}$ = .003) and Total Efficacy ($\underline{r}$ [48] = .38, $\underline{p}$ = .007), but not Personal Efficacy ($\underline{r}$ [48] = .14, $\underline{p}$ = .35).

In addition to comparing those who received Cognitive Coaching training with

those who did not, the relationship between the level of use of Cognitive Coaching in coaching groups and the *Vincenz Empowerment Scale* was examined. Significance was obtained for coaching cycles with total empowerment scores (r [48] = .30, p = .04), Independence (r [48] = .35, p = .01), and Motivation r [48] = .31, p = .03). Potency (r [48] = .25, p = .08) and Joy of Life (r [48] = .28, p = .06) were significant at .10.

Attitudes

A number of questions assessed teacher satisfaction in a variety of areas. Some of these were asked only of the teachers who took Cognitive Coaching training, while others were asked of the entire sample. A 1 to 5 scale was used where five represented "very satisfied" or "very positive," and 1 represented "very dissatisfied" or "very negative." Results relating to satisfaction with teaching as a career show an average score of 4.17, indicating quite a high level of satisfaction. Those trained in Cognitive Coaching averaged 4.43, while those not trained averaged 4.04 (t = 2.63, p = .01). Those trained in Cognitive Coaching were also more satisfied with their current positions, although these results were not statistically significant.

Qualitative Data Analysis

Qualitative data was gathered on questions about attitudes toward Cognitive Coaching, teaching as a career, position, professional growth planning, Cognitive Coaching groups, as well as activities in group meetings, gains from participating in groups, new teaching practices, and leadership roles. These questions produced quite a large amount of written material that we content analyzed. This analysis produced

seven major categories of response, as follows: sources of satisfaction with teaching as a career; sources of dissatisfaction with teaching as a career; sources of satisfaction with position; sources of dissatisfaction with position; positive comments about Cognitive Coaching; negative comments about Cognitive Coaching; new teaching practices used in the last two years. Table 5 presents the ratio of number of comments to number of people in the two groups of respondents being compared, those who took Cognitive Coaching compared with those who did not. Table 5 presents the results as the ratio of the number of comments to number of persons in the group. The rationale for the use of ratios is that the ratios permit comparisons relative to group size and provide important additional information regarding the attitudes, beliefs, and values of these two groups. A one (1) in Table 5 indicates that there is exactly one comment per person. (This doesn't necessarily mean that each person made one comment. Some may have made none, and some may have made more than one.) A number greater than one indicates that respondents have more to say about the issue in question, whereas a number less than one would mean that people have less to say. We make the assumption that the amount that the respondents have to say about an issue is related to the importance or salience of the issue in their careers.

It is immediately apparent from Table 5 that those who took Cognitive Coaching express more positive feelings about all aspects of their experience as teachers than those who did not take Cognitive Coaching. The greatest differences exist with regards to Cognitive Coaching, satisfaction with position, and with teaching as a

career. Those who took Cognitive Coaching also communicate less negatively regarding Cognitive Coaching, their careers, and their positions. Both groups express very low dissatisfaction with Cognitive Coaching, and as expected, those who did not take Cognitive Coaching have very few negative experiences to report. Both groups also describe a large number of new teaching practices used in the last two years. The ratios are 2.53 for those who took Cognitive Coaching and 2.22 for those who did not. Table 5 supports the argument that these new practices, when put into practice by the Cognitive Coaching group, are done so by a group who experience their professional lives with more positive and less negative attitudes.

Insert Table 5 About Here

Discussion and Conclusion

These results are supportive of the view that Cognitive Coaching positively impacts teacher efficacy and that those who afforded themselves the opportunity to participate in Cognitive Coaching training were more satisfied and less dissatisfied with teaching and their careers. The results with regards to empowerment are not as clear. The differences were in the predicted direction; however, effect sizes were small, and total empowerment was only marginally significant.

A major concern of this study and other studies similar to it is that participants volunteered, and the act of volunteering, in and of itself, may to some extent be indicative of efficacy and/or empowerment. Since school districts typically do not *require* their teachers to participate, we were required to work within a design model with well known limitations. One advantage of the design was that we were able to

compare two groups of teachers trained at one year intervals. Since there is no a-priori reason to assume that these groups, both of whom volunteered, should score differently on the instruments, the fact that the group trained earlier was higher on all measures may indicate that the impact of Cognitive Coaching is not immediate, but that its effects manifest themselves over time as teachers utilize their training and participate in multiple cycles of coaching. Our data tends to support this hypothesis. Those who participated in a greater number of coaching cycles scored higher on both teaching efficacy ($r[48] = .42$, $p = .003$) and total efficacy ($r[48] = .38$, $p = .007$). The same relationship between the number of coaching cycles and empowerment was also evident. Total empowerment, Independence, Motivation, Potency, and Joy of Life all produced correlations between .28 and .35. Edwards (1993) also found that more coaching cycles correlated with higher levels of reflection, and Foster (1989) found that higher numbers of cycles correlated with greater perceived impact on teachers' thought processes.

The qualitative findings show major differences between those who were trained and those who were not trained. First, it is clear that there were very few negative comments about Cognitive Coaching. We had considered the possibility that those who did not volunteer may have felt negatively about Cognitive Coaching, but this was not the case. Despite the lack of specific negative feelings regarding Cognitive Coaching, the overall results indicate that those who were not trained expressed more negative attitudes about other aspects of their position and career. Short and Rinehart (1992) suggested that higher levels of empowerment may actually lead to the

expression of greater dissatisfaction among teachers by empowering them to express negative opinions to the administration and to their colleagues. If this is true, it did not express itself in this research, as those trained were quite positive in expressing their opinions about their careers and positions. The fact that those trained in Cognitive Coaching scored higher in Motivation and Joy of Life also supports the qualitative data. Our research aligns more with Garmston's (1990) findings that teachers had more enthusiasm for teaching and a new sense of joy for teaching as a result of their training in Cognitive Coaching.

It would seem that Cognitive Coaching has key elements that would lead to greater teacher empowerment. Prawat (1991) suggested that teachers will become empowered as they ask questions of themselves and of others. In Cognitive Coaching, teachers ask questions of others in the coaching relationship, and as a result, ask questions of themselves as they become more self-coaching. In addition, Lichtenstein et al. (1991) suggest that teachers will become empowered through having knowledge of professional community, education policy, and subject area. Cognitive Coaching tends to influence teachers' knowledge of professional community and subject area. Nihlen's (1992) finding that teachers became empowered as a result of becoming researchers included the key components of having collaborative relationships, learning to speak the language of critical analysis, and developing understanding of the way things work. These key elements are also included in Cognitive Coaching. In addition, Irwin (1990) identified strategies that possibly contributed to teacher empowerment. These include collaboration, professionalism,

ownership, collegiality, risk-taking, listening, mentoring, and lack of isolation. These are all elements of Cognitive Coaching. Why then, did our findings produce only marginal results with regards to teacher empowerment? Our belief is that empowerment may take time and practice, and that training only provides the necessary tools. Cognitive Coaching is likely to be effective in influencing empowerment only after the tools have been put to use. Assessment immediately after training shows little difference with a control group, while a one year post-test shows major differences. In our continuing exploration of this data, we pursue these questions in greater depth.

Links to the efficacy literature are also evident. Cognitive Coaching training teaches teachers to use higher levels of questioning and to be less critical. Gibson and Dembo's (1984) finding that teachers with higher levels of efficacy are more likely to use more effective questioning skills and be less critical suggests that the training should positively impact efficacy. Similarly, the finding by Ashton et al. (1983) that higher efficacy correlated with more team teaching, which provided more psychological support, supports our findings because the Cognitive Coaching process tends to provide psychological support to teachers, the feeling that "We're in this together." In addition, the finding by Coladarci and Breton (1991) that teachers who reported that their supervision was beneficial scored higher on efficacy matches our finding that those who had taken Cognitive Coaching training reported greater satisfaction with teaching as a profession than those who had not taken the training. Grafton's (1993) study that found that beginning teachers who perceived that they were encouraged to

try new things by their supervisors also had higher levels of efficacy also fits with our study, since the coaching process encourages teachers to try new strategies in their teaching. These studies clearly support our own in that all serve to clarify the link between Cognitive coaching training and feelings of efficacy. As with empowerment, the findings also support the notion that efficacy increases with practice.

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Table 1

Descriptive Statistics for Vincenz Empowerment Scale, Total Scores and Subscales Scores, by Gender and Training Group

	Vincenz Empowerment Scale					
	Tot	Rel	Pot	Mot	Joy	Ind
1991 Training						
Males(9)[1]						
Mean	261.56	56.44	51.67	48.67	48.67	56.11
SD	20.78	7.76	3.71	3.58	3.58	6.24
Females(15)						
Mean	269.27	58.53	51.40	51.27	50.93	57.67
SD	22.78	7.11	7.22	3.28	3.57	4.95
1992 Training						
Males(8)						
Mean	248.88	59.00	47.00	45.75	45.75	51.63
SD	24.55	5.63	5.27	5.63	5.63	7.01
Females(12)						
Mean	257.92	57.50	49.83	48.17	48.17	54.25
SD	21.92	6.13	6.21	4.86	4.86	7.16
Control						
Males(18)						
Mean	247.53	52.67	48.22	46.28	46.22	53.83
SD	21.39	6.42	6.26	4.27	4.60	5.93
Females(68)						
Mean	255.64	56.40	48.15	48.49	48.29	55.00
SD	23.82	6.40	7.05	4.12	4.38	7.71

Notes. Tot = Total; Rel = Relatedness; Pot = Potency; Mot = Motivation; Joy = Joy of Life; Ind = Independence

1 Ns in parentheses.

Table 2

Analysis of Covariance Results for Vincenz Empowerment Scale

		SS	df	MS	F
Covariate: Age					
	Tot	387	1	387	<1
	Rel	122	1	122	3.08*
	Pot	113	1	113	2.51
	Mot	9	1	9	<1
	Joy	9	1	9	<1
	Ind	31	1	31	<1
Training Group					
	Tot	2959	2	1479	2.77*
	Rel	131	2	65	1.64
	Pot	141	2	70	1.58
	Mot	173	2	86	5.00***
	Joy	161	2	80	4.28**
	Ind	153	2	76	1.53
Gender					
	Tot	1637	1	1637	3.06*
	Rel	147	1	147	3.68*
	Pot	7	1	7	<1
	Mot	127	1	127	7.32***
	Joy	110	1	110	5.84***
	Ind	62	1	62	1.23
Error					
	Tot	64673	121	534	
	Rel	4900	123	40	
	Pot	5514	123	45	
	Mot	2127	123	17	
	Joy	2314	123	18	
	Ind	6152	121	50	

Notes. The results summarize 6 ANCOVAs. Two way interactions were not significant and excluded. VES = Vincenz Empowerment Scale; Tot = Total; Rel = Relatedness; Pot = Potency; Mot = Motivation; Joy = Joy of Life; Ind = Independence;
* p < .1 ** p < .05 *** p < .01 **** p < .001

Table 3

Descriptive Statistics for Teacher Efficacy Scale, Total Teacher Efficacy, Personal Teacher Efficacy (Self-Efficacy) and Teaching Efficacy (Outcome Expectancy), by Gender and Training Group

	Teacher Efficacy Scale		
	Total[1]	Personal[2]	Teaching[3]
1991 Training			
Males(9)[4]			
Mean	9.32	5.01	4.31
SD	1.32	.52	1.08
Females(15)			
Mean	8.74	4.87	3.87
SD	1.22	.57	.89
1992 Training			
Males(8)			
Mean	7.93	4.68	3.25
SD	1.17	.51	.91
Females(12)			
Mean	8.26	4.90	3.36
SD	1.24	.49	.49
Control			
Males(18)			
Mean	7.73	4.46	3.27
SD	1.10	.50	.92
Females(68)			
Mean	7.78	4.69	3.10
SD	.98	.60	.71

Note. Ns in parentheses.
1 Total Teacher Efficacy
2 Personal Teacher Efficacy (Self-Efficacy)
3 Teacher Efficacy (Outcome Expectancy)

Table 4

Analysis of Covariance Results for Teacher Efficacy Scale

		SS	df	MS	F
Covariate: Age					
	TTE	6.1	1	6.1	4.96**
	PTE	<1	1	<1	2.15
	TE	2.5	1	2.5	3.64*
Training Group					
	TTE	24.3	2	12.1	9.93****
	PTE	1.2	2	1.2	2.01
	TE	17.7	2	5.9	11.1****
Gender					
	TTE	<1	1	<1	<1
	PTE	<1	1	<1	1.75
	TE	1.3	1	1.3	1.94
Error					
	TTE	148.0	121	1.2	
	PTE	40.7	122	.3	
	TE	83.3	122	.7	

Notes. The results summarize 3 ANCOVAs. Two-way interactions were not significant and excluded. TES = Teacher Efficacy Scale; TTE = Total Teacher Efficacy; PTE = Personal Teacher Efficacy (Self-Efficacy); TE Teacher Efficacy (Outcome Expectancy).

* p < .1 ** p < .05 *** p < .01 **** p < .001

Table 5

Ratio of Number of Comments to Size of Group

Title	Ratio:# Comments/Group Size	
	CC	No CC
Sources of Satisfaction with Teaching as a Career	1.67	0.79
Sources of Dissatisfaction with Teaching as a Career	0.55	0.74
Sources of Satisfaction with Position	1.51	0.91
Sources of Dissatisfaction with Position	0.31	0.60
Positive Comments About Cognitive Coaching	1.94	0.48
Negative Comments About Cognitive Coaching	0.02	0.38
New Teaching Practices Used in the Last Two Years	2.53	2.22
Sources of Satisfaction with Cognitive Coaching	1.81	1.21
Sources of Dissatisfaction with Cognitive Coaching	0.30	0.38
Sources of Satisfaction with Professional Growth Planning	1.07	0.79
Sources of Dissatisfaction with Professional Growth Planning	0.41	0.42